

REMARKS

[1-2] Claims 7, 19, and 22 are rejected under 35 U.S.C. §102(b) as being anticipated by Ando (U.S. Patent 5,268,985). This rejection is moot, as claim 7 is amended to include the subject matter of allowable claim 9, claim 22 depends from claim 7, and claim 19 is canceled.

[3] Claims 4, 6, 18, and 21 are rejected under 35 U.S.C. §102(e) as being anticipated by Fohl (U.S. Patent 6,422,713). This rejection is respectfully traversed. Dependent claim 21 is now incorporated into claim 4.

At the interview, the Applicant argued that the claim is not anticipated because Fohl does not disclose two large parallel faces, but instead either a large corrugated face which is not parallel to the opposing large face, or, a series of small faces or facets which are parallel to the opposing large face but are not large. The Examiner is invited to consider:

(1) The Applicant's facets 3a, shown in Fig. 5, are exemplary of the claimed "reflection portion" which is comprised in one of the two parallel faces. The facets 124a, 124b, ... of Fohl cannot be equated to the Applicant's facets 3a because Fohl's facets are parallel to the opposite face, but the Applicant's facets are *not* parallel to the opposite face. The inclination of the Applicant's facets is the reason that the reflection portion "ejects the reflected light from the other of the two opposing faces."

Since Fohl's facets are parallel to the opposite face, they are not equivalent to the Applicant's facets 3a, nor to any other specific embodiment of the claimed reflection portion; since Fohl's facets are small, they are not equivalent to the claimed parallel face.

(2) The Examiner is invited to consider the Applicant's specification at page 23, line 14, referring to Fig. 6, which states, "On the top *face* of the light guide 3 [are] reflection portions 3a [i.e., facets] each comprising a V groove" (emphasis added) and page 16, line 20, stating that reflection portions 3a are arranged on the "*plane*" of the light guide 3 of Fig. 4 "which is opposite to the light ejecting face." In the Applicant's specification, the light guide surfaces are referred to interchangeably as both "planes" and "faces." For another example, a single feature is referred to by both names, "face" and "plane" at page 25, lines 15-16.

The Applicant respectfully submits that "plane" could not mean the small facets of the light guide, and therefore the equivalent "face" also does not refer to the facets of Fohl.

The Examiner is authorized to change "face" to "plane" in claim 4, or, request the Applicant to make such a change by additional amendment.

(3) At the interview, the examiners questioned whether the claim language, "the two opposing faces of the light guide having larger areas than the other faces," means the two opposing faces having the *largest* areas. The Applicant requests the Examiner to consider that "other faces" is not limited by any modifier and therefore means *all* the other faces. The claim language is analogous to statements like "this dog is larger than the others in the kennel" or "these peaks are higher than others in the chain," in which "others" clearly means all of the others in the group.

[4-5] Claims 1, 3, 17, and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Sugiyama (U.S. Patent 6,232,592). This rejection is respectfully traversed.

The Applicant argued at the interview that if Sugiyama's light guide (shown in cross section in Fig. 5) were made "rectangular" as is recited at col. 5, line 12, then the largest faces of the light guide would *not* comprise the reflection portion 3 and the light-emergent portion 4

(shown in Fig. 5 to be shaped as a smaller-radius cylindrical lens portion of the generally cylindrical light guide).

The Applicant argued that if the light guide of Fig. 5 were made rectangular, it be by removing the two chords on either side so that the largest faces would be on either side, contrary to the recitation in claim 1 that the reflection portion is on one of the two largest faces.

The Applicant now argues further that Sugiyama teaches *against* such an orientation, by the following points:

(1) Sugiyama states (col. 5, line 27) that the reflection portion 3 has “an *elongate* area along the side surface” (emphasis added), and it clearly shows reflection portion 3 as being narrower than either dimension (height or width) of the light guide, so that it is not a largest face.

(2) Sugiyama's device is intended to read one line of text at a time. Sugiyama states that its object is “an apparatus for illuminating an original with a linear light beam” (col. 1, line 9), and does not suggest illumination over an area wider than a line of text. Therefore, there is no suggestion to make the light guide rectangular by making the reflection portion 3 or the light emergent portion 4 any wider while keeping the height constant (as seen in Fig. 5).

(3) Sugiyama states (col. 3, line 31): “Since the light guide member has a columnar [i.e. cylindrical] shape, the light [is] efficiently guided into a linear light beam.” No explanation of this efficiency is seen, but the Applicant presumes that the advantage of the cylindrical shape is related to total internal reflection of the light, which is repeatedly mentioned by Sugiyama (e.g., col. 1, line 42 and col. 4, lines 56 and 67). Only total internal reflection can guide the light inside the light guide member, as no reflective coating is mentioned.

Making the rectangle wide in the horizontal direction would lead to increased light leakage, while making the rectangle wide in the vertical direction would not. The Examiner is invited to consider the following argument:

Light emitted from the LED on the end face 2 will be reflected upward by the reflection portion 3 at an angle θ' steeper than the incident angle θ , as shown in Fig. 3A., so that can leave the light guide without being totally internally reflected. But now considering Fig. 5, light from the source 1 (not shown in Fig. 5 because Fig. 5 is a cross section) radiates across the full width of the reflection portion 3, and rays arriving near the edges of that portion, when reflecting upward, will diverge away from the light emergent portion 4 at the same angle, because the faces of the reflection portion are not curved or inclined side to side. As seen in Fig. 5, the rays will reflect from the reflection portion 3 as if from a plane mirror.

If the sides of the light guide are made flat, due to removing the two side chords, then these upwards rays will hit a vertical surface at a grazing angle and will be totally internally reflected toward the light emergent portion 4. On the other hand, if the orientation of the rectangle is horizontal as the Examiner advocates, then the upward rays will hit a *horizontal* upper surface next to the light emergent portion 4. They will hit at a steep angle, and will leave the light guide without having been focused by the light emergent portion 4, contrary to Sugiyama's intention that "the light [is] efficiently guided into a linear light beam."

(4) Sugiyama does not explicitly teach that removing the side chords of circular cross section in Fig. 5 would affect the optical characteristics of the light guide, but Sugiyama does explicitly teach against making the light guide shorter in the vertical direction.

First, bringing the reflection portion 3 closer to the emergent portion 4 would certainly change the optical characteristics, and that is inherently taught against, because a random change in the optical characteristics is likely to be deleterious.

Second, Sugiyama calculates on the basis of distance H between the reflection surface 3 and the position where light enters the light guide (col. 6, lines 10-32), which is shown as

position 1 in Fig. 4. However, Sugiyama does not calculate on the basis of any dimension that is horizontal in Fig. 5. Thus, Sugiyama teaches that a vertical dimension is important but the horizontal dimension is not worthy of mention.

[6] Claim 9, stated to be allowable, is now combined with claim 7, which should now be allowable. Allowance of claim 7 is requested.

It is respectfully submitted that entry of this amendment would put the case into condition for allowance, which is solicited.

Respectfully submitted,

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